

Application Serial No.: 10/004,363  
Response to May 5, 2004 Office Action

### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously amended) A method comprising:

acquiring first three-dimensional surface data representing at least a portion of a patient's body while the patient is in a first position substantially maintained during a computed tomography scan;

acquiring second data representing at least one internal three-dimensional portion of the patient's body while the patient is in the first position; and

acquiring third three-dimensional surface data representing at least the portion of the patient's body while the patient is in a second position substantially maintained in preparation for radiation treatment.

2. (Original) A method according to Claim 1, further comprising:

determining a radiation treatment plan based on the first data, the second data, and on data representing a physical layout of a radiation treatment station.

3. (Original) A method according to Claim 2, wherein the step of determining the radiation treatment plan comprises:

determining a position of a radiation treatment device that will avoid the patient's body and that will allow irradiation of a portion of the at least one internal portion.

4. (Cancelled)

5. (Previously amended) A method according to Claim 1, further comprising:

determining, based on the first data and the third data, that the second position does not correspond to the first position.

6. (Original) A method according to Claim 5, further comprising:

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instructing the patient to move so that the second position corresponds to the first position.

7. (Original) A method according to Claim 5, further comprising:  
changing a radiation treatment plan for the patient based on a difference between the first position and the second position.

8. (Original) A method according to Claim 1, further comprising:  
determining, based on the first data and the third data, that the patient represented by the first data is different from the patient represented by the third data.

9. (Previously amended) A method according to Claim 1, further comprising:  
determining, based on the first data and the third data, that the patient's body has changed by greater than a threshold amount; and  
in response to the determination that the patient's body has changed by greater than the threshold amount, acquiring fourth three-dimensional surface data representing at least the portion of the patient's body while the patient is in a third position substantially maintained during a second computed tomography scan.

10. (Previously amended) A method according to Claim 1, further comprising:  
acquiring fourth three-dimensional surface data representing at least the portion of the patient's body while the patient is in a third position; and  
activating a radiation beam according to a radiation treatment plan if it is determined based on the fourth data that the third position corresponds to a point in a cycle of body motion specified by the treatment plan.

11. (Previously amended) A method according to Claim 10, further comprising:  
acquiring fifth three-dimensional surface data representing at least the portion of the patient's body while the patient is in a fourth position; and

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deactivating the radiation beam according to a radiation treatment plan if it is determined based on the fifth data that the fourth position does not correspond to the point specified by the treatment plan.

12. (Previously amended) A method comprising:

acquiring computed tomography data of a patient while the patient remains substantially in a first position;

acquiring first three-dimensional surface data of the patient while the patient remains substantially in the first position;

determining a radiation treatment plan based on the computed tomography data, the three-dimensional data, and data representing a physical layout of a radiation treatment station;

acquiring second three-dimensional surface data of the patient while the patient remains substantially in a second position at the radiation treatment station;

determining if the second three-dimensional data corresponds to the first three-dimensional data; and

delivering radiation to the patient according to the radiation treatment plan if it is determined that the second three-dimensional data corresponds to the first three-dimensional data.

13. (Previously amended) A system comprising:

a computed tomography scanning device for acquiring computed tomography data of a patient while the patient is in a scanning position;

a first surface photogrammetry device for acquiring first three-dimensional surface data of at least a portion of the patient's body while the patient is in the scanning position;

a radiation treatment device for delivering radiation to the patient; and

a second surface photogrammetry device for acquiring second three-dimensional surface data of at least the portion of the patient's body while the patient is in a treatment position on the radiation treatment device.

14. (Original) A system according to Claim 13, further comprising:

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a treatment planning device for generating a radiation treatment plan based on the computed tomography data, the first three-dimensional surface data, and data representing a physical layout of a radiation treatment station.

15. (Previously amended) A system according to Claim 13, further comprising:  
a controller for determining if the treatment position corresponds to the scanning position based on the first three-dimensional surface data and the second three-dimensional surface data.

16. (Previously amended) A system according to Claim 13, wherein the first surface photogrammetry device and the second surface photogrammetry device are a same device.

17. (Previously amended) A medium storing controller-executable process steps, the process steps comprising:

a step to acquire first three-dimensional surface representing at least a portion of a patient's body while the patient is in a first position substantially maintained during a computed tomography scan;

a step to acquire second data representing at least one internal three-dimensional portion of the patient's body while the patient is in the first position; and

a step to acquire third three-dimensional surface data representing at least the portion of the patient's body while the patient is in a second position substantially maintained in preparation for radiation treatment.

18. (Original) A medium according to Claim 17, the process steps further comprising:  
a step to determine a radiation treatment plan based on the first data, the second data, and data representing a physical layout of a radiation treatment station.

19. (Cancelled)

20. (Previously amended) A medium according to Claim 17, the process steps further comprising:

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a step to determine, based on the first data and the third data, that the patient's body has changed by greater than a threshold amount; and

a step to acquire, in response to the determination that the patient's body has changed by greater than the threshold amount, fourth three-dimensional surface data representing at least the portion of the patient's body while the patient is in a third position substantially maintained during a second computed tomography scan.

21. (Previously amended) A medium according to Claim 17, the process steps further comprising:

a step to acquire fourth three-dimensional surface data representing at least the portion of the patient's body while the patient is in a third position; and

a step to activate a radiation beam according to a radiation treatment plan if it is determined, based on the fourth data, that the third position corresponds to a position specified by the treatment plan.

22. (Previously amended) A medium according to Claim 17, the process steps further comprising:

a step to acquire fourth three-dimensional surface data representing at least the portion of the patient's body while the patient is in a third position; and

a step to activate a radiation beam according to a radiation treatment plan if it is determined based on the fourth data that the third position corresponds to a point in a cycle of body motion specified by the treatment plan.

23. (Previously amended) A medium according to Claim 22, the process steps further comprising:

a step to acquire fifth three-dimensional surface data representing at least the portion of the patient's body while the patient is in a fourth position; and

a step to deactivate the radiation beam according to a radiation treatment plan if it is determined based on the fifth data that the fourth position does not correspond to the point specified by the treatment plan.